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Exogenous factors of the textile-related low-tech industries competitiveness in Lithuania*

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Abstract

This paper is an analysis of exogenous factors of low-tech industries competitiveness in Lithuania. After carrying out an analysis of scientific literature and determining the most significant exogenous factors of industries competitiveness in general, the importance of these factors have been examined at the example of Lithuanian textile and wearing apparel sectors with the help of an expert survey. The article presents the results of the empirical study and raises several discussion points on the subject.

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Keywords: Low-tech industry; textile and wearing apparel sectors; competitiveness; exogenous factors; Lithuania.

1. Introduction

In the recent era of the high-tech production and industries, the other side of the coin – the low-tech industries in both scientific and popular literature are quite often associated with low profitability, low growth and low progress. However, this is usually not the case at all. As stated by Maskell (1998), even countries with some of the world's highest labor costs have based their economies on an ability to be competitive in labor-intensive low-tech production. Most of the Lithuanian low-tech industries, like manufacture of food products, manufacture of textiles, manufacture of wearing apparel, manufacture of wood and of products of wood, manufacture of paper and paper products, manufacture of furniture could be provided as perfect examples of successful and competitive export-oriented European low-tech industries, which are not located in a low-wage country. The core purpose of the

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research is to reveal the main findings of the study of the exogenous factors of textile-related industries competitiveness in Lithuania, carried out by the authors. The main scientific problem of the paper: what are the most influential exogenous factors of the Lithuanian textile-related industries competitiveness and how these factors affect these sectors? It is important to mention that this article emphasizes not on the mathematical expression of the low-tech industries competitiveness in Lithuania, but rather on the "soft" variables, i.e. qualitative features that affect the low-tech industries competitiveness in general.

It goes without question that, in the rapid and evolving development process industries are among the most important drivers of humans, science, investments and innovation in a national economy. However, not all industries are equal. Some of them are at their initial point and all progress is only ahead, some – at their peak point of competitiveness and productiveness, while the others strive at the end of their life cycle. Modern scientific literature, as mentioned before, mostly emphasizes the demise of the low-tech industries, giving the stage to the high-tech. Here it is important to point out that there are numerous high quality and innovative products that simply can not be produced by high-tech, because they require a lot of operations that cannot be carried out by machines, but need human thought and hands touch. And because of this fact the low-tech industries are able to sustain their competitiveness against the high-tech and in some case even outrage it. But it is not only the technological and specific product peculiarities that define the low-tech industries competitiveness. As any other open system the low-tech industries are influenced by the exogenous environment, which in most cases play the most important role in defining the industries competitiveness. As stated by scholar Lall (2001), a "complete competitiveness analysis must define what competitiveness means and how it is to be measured and identify the most important factors influencing it, the interactions between these factors an how they affect the competitiveness of the subject of investigation".

As suggested by Saboniene (2009), "in considering industry competitiveness as concept is evident recognizing of price (lower-cost) competitiveness and non-price competitiveness categories, which highlight both natural (inherited) and created sources of competitiveness, which can be analyzed as critical variables." As Hirsch-Kreinsen (2008) notes, "competitiveness relates to holding superior abilities and capabilities than competitors and it involves:

(1) results achieved in the past;

(2) perception of the future potential."

Both factors and indexes define competitive position of company, industry or nation and provide the necessary elements for further analyses aimed at improving long-term performance and future competitiveness. Camagni (2002) emphasizes, "that competitiveness depends on factors which are not only found in the physical externalities accessibility or environmental quality, but also in relation capital and the learning capacity expressed by the territory."

The competitiveness factors are divided to endogenous factors (internal to the company) and exogenous (outside to the company). Industry members can act on endogenous factors to achieve goals and improve competitiveness. However, the object of this scientific research – the exogenous factors shape the environment in which industry members have to operate and compete, therefore a separate company or even the whole industry has little, if any, influence over them. Both factors categories must be taken into account in developing a comprehensive framework of supporting competitiveness.

After carrying out an analysis of scientific works (Bender, 2006; Carrol et al., 2000; Gumilar et al., 2011; Köhler, 2008; Lien & Foss, 2000; Sedziuviene & Vveinhardt, 2010; Startienė & Pridotkas, 2012), a list of exogenous factors influencing competitiveness of the low-tech industries has been created (see Figure 1). The list of factors is useful for analyzing qualitative elements of competitiveness in order to identify sources of competitiveness, their conditions and spheres for improving. Furthermore, as scholars Lu et al. (2008) note "there is practical need to find smaller set of vital factors to improve competitiveness."

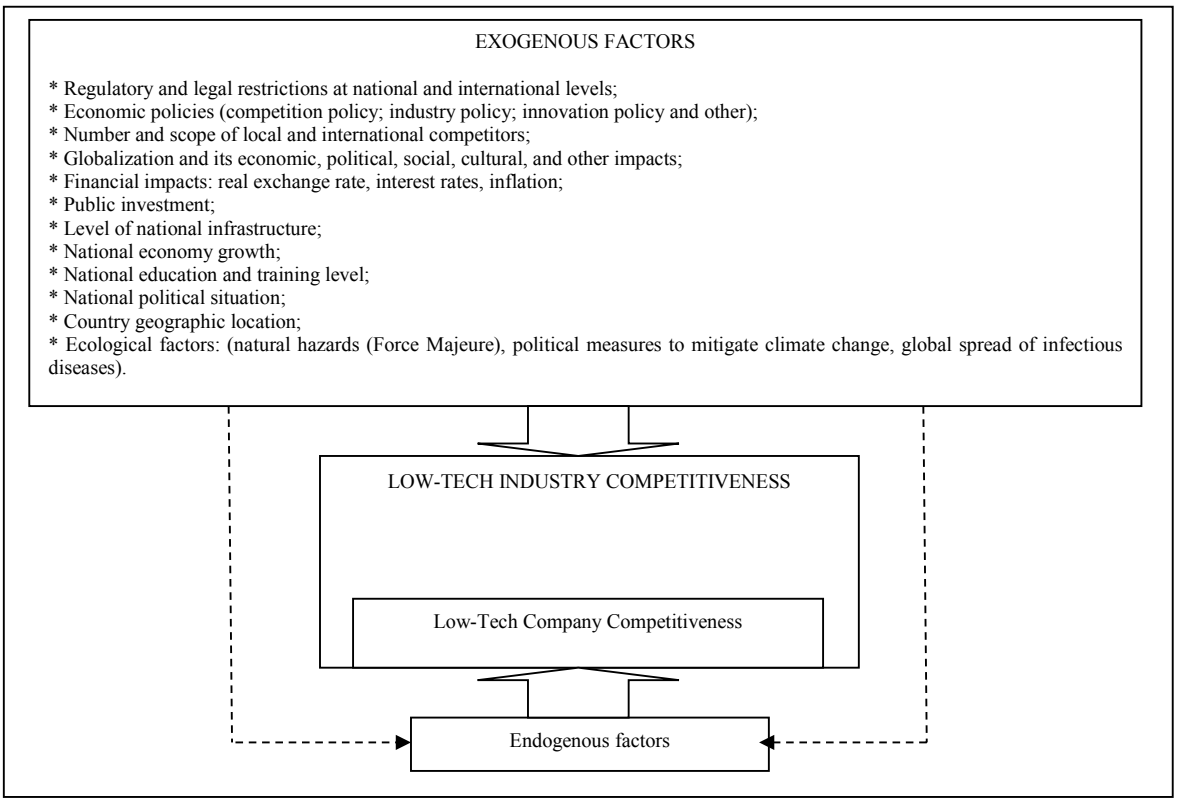

Fig. 1. Endogenous[†] and exogenous[‡] competitiveness factors.

It is important to mention that there are much more exogenous factors than excluded in Figure 1, however these were the most oftenly mentioned in the scientific literature analysed. Furthermore, it is evident that each low-tech industry encounters the mentioned factors at a different intensity.[§]

2. Method

In order to conduct the analysis of the exogenous factors of low-tech industries competitiveness in Lithuania and get empirical results, the following general research methods have been applied: systematic, comparative and logical analysis of the scientific literature, expert survey (questionnaire interview), grouping and detailing.

The analysis and interpretation of the empirical research of the exogenous factors of low-tech industries competitiveness in Lithuania reveals the results of the expert survey. The survey has been carried out interviewing 18 experts from manufacture of textiles (C13), manufacture of wearing apparel (C14) sectors. The mentioned sectors have been selected because of higher availability of the experts as these are the largest most people employing low-tech sectors not only in Lithuania, but in the whole world.

[†]Endogenous variable: A factor in a causal model or causal system whose value is determined by the states of other variables in the system; contrasted with an exogenous variable. (Woodward, 1995)

[‡] Exogenous variable: A factor in a causal model or causal system whose value is independent from the states of other variables in the system; a factor whose value is determined by factors or variables outside the causal system under study. (Woodward, 1995)

[§] Due to the extended abstract volume limitations each of the factors shall not be detailed and analysed separately.

The main tool of the survey – the questionnaire consisted of 12 questions. Most of the experts have been interviewed directly by the authors of the paper. The questions were based on the Likert Scale and the experts had to express their approval or disapproval to the statements provided by checking the scores between 1 ("I totally disagree") and 5 ("I totally agree").

3. Results

In order to verify the scale reliability, the coefficient Cronbach's alpha (α), has been calculated, which was equal to 0.76 (scale – 12 questions). This is more than the critical value of the α (0.7), that is why it can be concluded that statements in the questionnaire sufficiently accurately reflect the examined specimen. Aiming to determine which of exogenous factors of the textile-related low-tech industries competitiveness in Lithuania are the most important and influential, experts had to evaluate each of them. The questionnaires estimated Kendall's coefficient of concordance W = 0.625, when p = 0.036 is less than the critical level of significance (0.05). This demonstrates that there is a statistically significant difference between the exogenous factors of low-tech industries competitiveness in Lithuania according to the opinions of the experts.

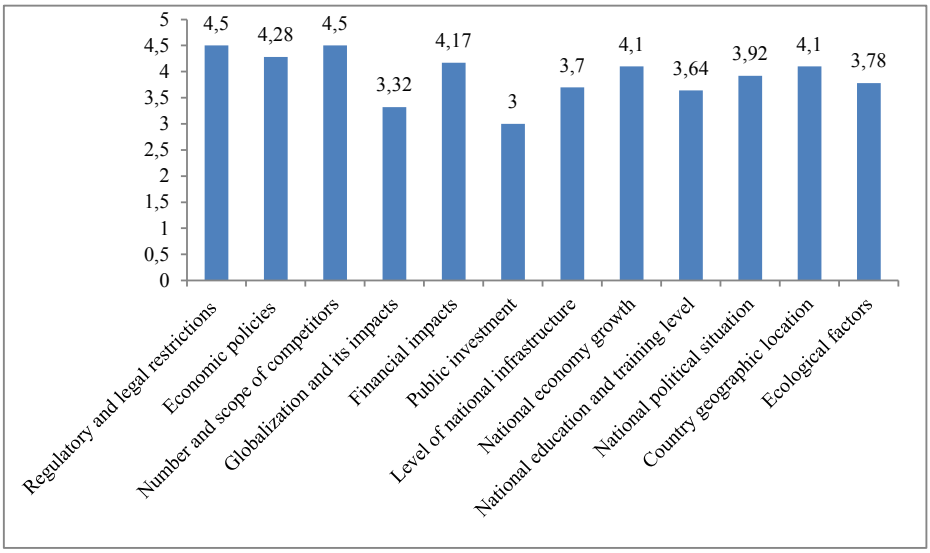

Fig. 2. The average scores of exogenous factors of the textile-related low-tech industries competitiveness in Lithuania

Carrying out the analysis of the average scores of the factors, the highest scores (4.5) were calculated for the factors „Regulatory and legal restrictions at national and international levels" and „Number and scope of local and international competitors". These were followed by "Economic policies (competition policy; industry policy; innovation policy and other)" and "Financial impacts: real exchange rate, interest rates, inflation", which scored accordingly 4.28 and 4.17. "Country geographic location" (score 4.1) and "National economy growth" (score 4.1) shared the 5th and 6th positions. Surprisingly, such factors as "National political situation" and "Ecological factors: (natural hazards (Force Majeure), political measures to mitigate climate change, global spread of infectious diseases)" appeared in the second half of the list ranking 3.92 and 3.78 accordingly. Grounding on the experts' opinion the less significant exogenous factors of low-tech industries competitiveness in Lithuania are the "Level of national infrastructure" (score average – 3.70) and "National education and training level" (score average – 3.64). Finally the list of exogenous factors is concluded by "Globalization and its economic, political, social, cultural, and other impacts" and "Public investment", scored 3.32 and 3.0 accordingly. It is very important to emphasize, that the results of the questionnaire mainly reflect the situation in the textile and wearing apparel sectors and the same survey, carried out in other low-tech sectors could reveal similar but different results.

4. Conclusions

After carrying out an analysis of scientific and literature on the subject, it becomes obvious that the low-tech industries and their potential are undeservedly underestimated and often mistakenly associated with low-growth, low-profitability and the end of the life-cycle. However, there are numerous sources that suggest proof, that the low-tech industries are not only the foundation of economies and GDPs across countries but also a solid ground for innovation and technological progress.

In the recent era of globalization and at a geometrical progression growing competition, nations, industries, sectors and finally companies are forced to constantly track their competitiveness and determine both endogenous and exogenous factors of competitiveness in order to improve and reach a higher level of competitiveness.

The analysis of scientific and popular literature on the issue has revealed the most significant exogenous factors of industries competitiveness. The results of the expert survey carried out in order to find out which factors are the most pressing issues in the Lithuanian low-tech industries, raised a number of questions and discussion points. As expected, "regulatory and legal restrictions at national and international levels", „number and scope of local and international competitors" and "economic policies (competition policy; industry policy; innovation policy and other)" topped the list. The experts interviewed have pointed out, that Lithuanian industry concerning laws and various regulations both at state and municipal levels are subject to change almost quarterly. Failing to predict the future operating and competition conditions companies can lose their competitiveness in respect to their rivals from more predictable conditions. Another aspect that is noteworthy to mention is that financial impacts, i.e. real exchange rate, interest rates, inflation are becoming much more predictable than before and thus makes it easier to compete, however all market participants share the same information. Discussing the country geographic location as a factor of competitiveness, it appeared that Lithuanian low-tech sector is a real winner in the situation due "the center position" and proximity to both Western European and Eastern markets. Speaking about the level of national infrastructure the national education and training level, most of the experts agreed that these are too general factors and their level is much better than satisfactory.

Generalizing on the expert survey results, it can be stated that the most often mentioned issue discussing the exogenous factors was not their existence or importance in general, but their predictability. If the factor is possible to predict – it becomes a competitive advantage. This is the main conclusion of this conducted study.

References

Bender, G. (2006). Pecularities and Relevance of Non-Research-Intensive Industries in the Knowledge-based Economy. www.pilot-project.org

Camagni, R. (2002). *On the concept of Territorial Competitiveness: Sound of Misleading*? Urban Studies, *39,* 2395-2411.

Carrol, P., Pol, E., & Robertson, P.L. (2000). *Classification of Industries by Level of Technology: an Appraisal and some Implications*. Prometheus, *18.*

Gumilar V., Zarnic, R., & Selih, J. (2011). Increasing Competitiveness of the Construction Sector by Adopting Innovative Clustering. *Inzinerine Ekonomika-Engineering Economics*, *22,* 41-49.

Hirsch-Kreinsen, H. (2008). „Low-technology": a forgotten sector in innovation policy. *Journal of Technology Management & Innovation, 3),* 11-20.

Hirsch-Kreinsen, H., Jacobson, D., & Robertson, P. (2006). „Low-tech" Industries: Innovativeness and Development Perspectives—A Summary of a European Research Project. *Prometheus, 24*, 3-21.

Köhler, H.-D. (2008). Profit and Innovation Strategies in Low-Tech Firms. *Estudios de Economia Aplicada*, *26,* 73-87.

Lall, S. (2001). *Competitiveness, technology and skills*. Edward Elgar Publishing, Cheltenham, UK.

Lien, L. B., & Foss, N. J. (2000). The determinants of Industry Concentration: two new empirical regularities. Forthcoming in Managerial and Decision Economics. [Online] Available: http://www.nhh.no/Files/ Filer/institutter/sol/Discussion%20Papers/2009/Discussion_paper _3_2009.pdf.

Lu, W., Shen, L. & Yam, M. C. H. (2008). Critical success factors for competitiveness of contractors: China study. *Journal of construction Engineering and Management, 134*.

Maskell, P. (1998). Low-Tech Competitive Advantages and the Role of Proximity: The Danish Wooden Furniture Industry. *European Urban and Regional Studies, 4,* 99-118.

Porter, M. E. (1980). *Competitive strategy: Techniques for analysing industries and competitors*. New York: Free Press.

Porter, M.E. (1985). *Competitive Advantage*. New York: Free Press.

Saboniene, A. (2009). Lithuanian Export Competitiveness: Comparison with other Baltic States. *Inzinerine Ekonomika-Engineering Economics, 2,* 49-57.

Sedziuviene, N., & Vveinhardt, J. (2010). Competitiveness and Innovations: Role of Knowledge Management at a Knowledge Organization. *Inzinerine Ekonomika-Engineering Economics*, *21,* 525-536.

Startienė, G., & Pridotkas, R. Skirtingo technologinio lygio pramonės šakų įtaka šalies ekonomikos augimui. *Economics & Management*, *17* , 92-98.

Woodward, J. (1995). Causation and Explanation in Econometrics. In On the Reliability of Economic Models: *Essays in the Philosophy of Economics*, edited by D. Little. Boston: Kluwer Academic Publishers.